

AD-A079 993

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2  
193068 6SR5, MISSILE NUMBERS 1043, 1045, ROUND NUMBERS V-64, V---ETC(U)  
AUG 79

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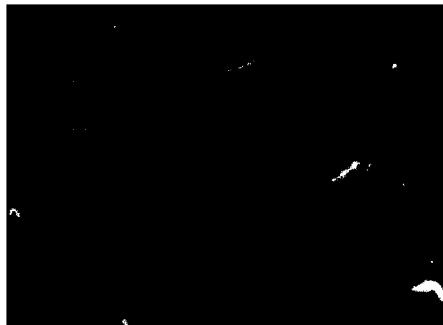
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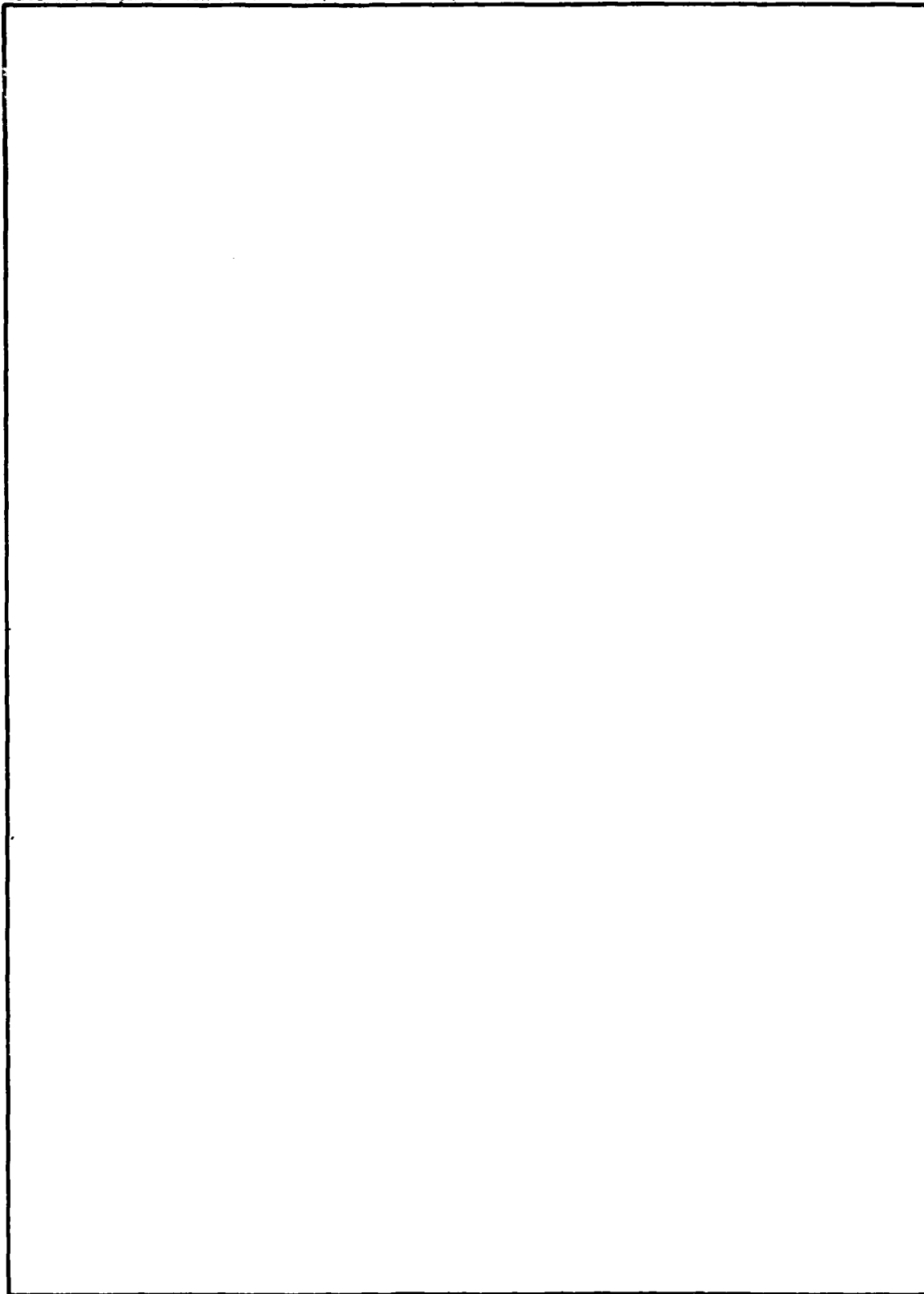
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19306B GSRS, Missile Numbers 1043, 1045, Round Numbers V-64, V-65, are presented in tabular form.		

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## INTRODUCTION

19306B GSRS, Missile Numbers 1043 and 1045, Round Numbers V-64 and V-65, were launched from SNAKE, White Sands Missile Range (WSMR), New Mexico, at 1400 and 1531 MDT, 17 August 1979. The scheduled launch times were 1400 and 1400:02.5 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the Snake Met Site at T-0 minutes.

(2) Monitor of wind speed and direction from one anemometer was provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

## SITE AND ALTITUDE

Snake	900 Meters
Denver	900 Meters

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

## SITE AND TIME

SW-70	1115 MST
WSD	1420 MST



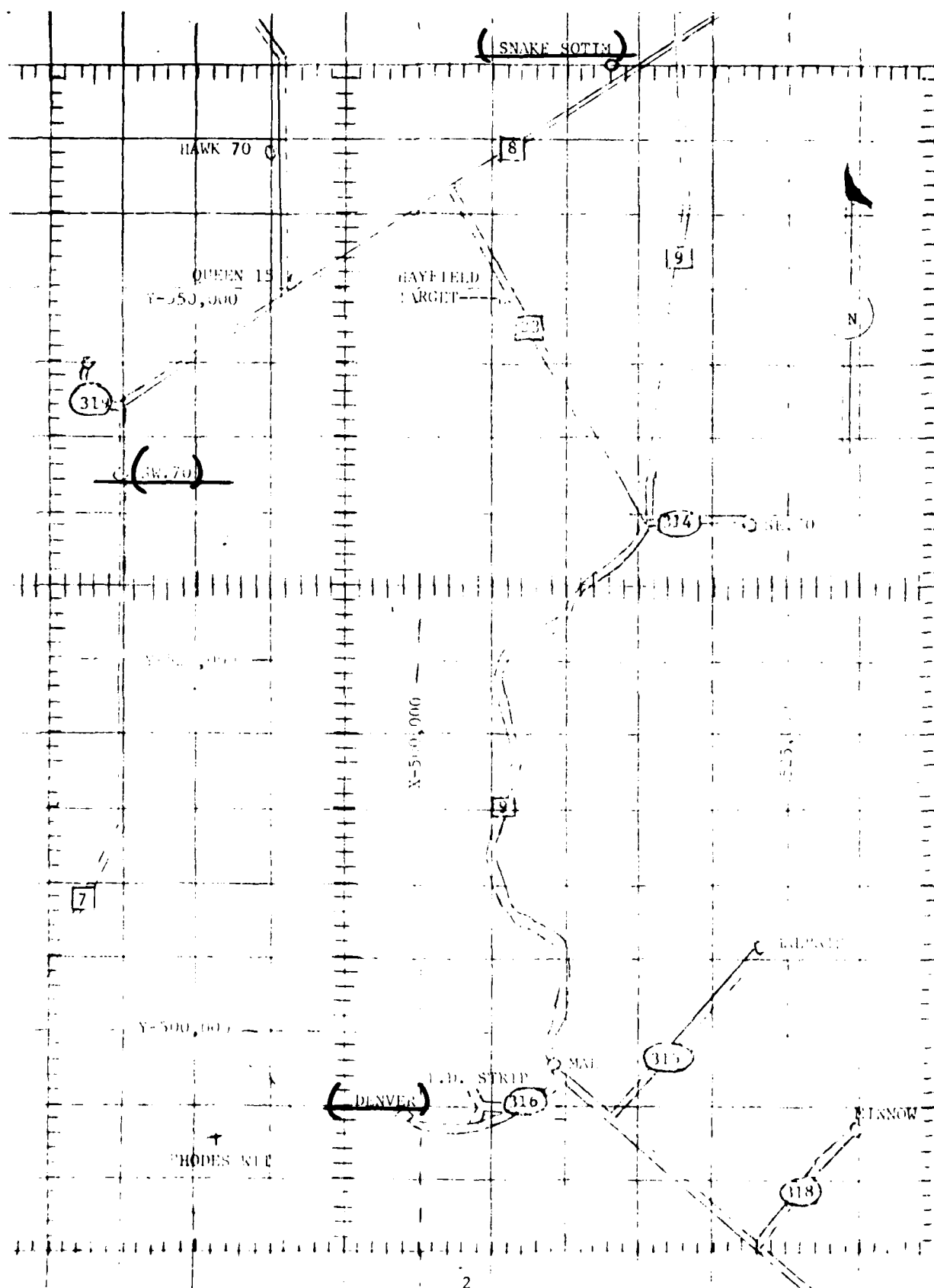


TABLE 1. Surface Observations Taken at 1400 MDT,  
17 August 1979, at Snake Site, 19306U GPS  
Missile Numbers 1043, 1045, Round Numbers  
V-64 and V-65.

ELEVATION		FT/MSL
PRESSURE	864.8	MBS
TEMPERATURE	26.3	°C
RELATIVE HUMIDITY	62	%
DEW POINT	18.4	°C
DENSITY	998	GM/M <sup>3</sup>
WIND SPEED	04	MPH
WIND DIRECTION	190	DEGREES
CLOUD COVER	3	Cu
CLOUD COVER	1	Ac
CLOUD COVER	5	Cs

PILOT BALLOON MEASURED WIND DATA\*  
(30 meter increments)

TABLE 2

RELEASED FROM Snake Site DATE 17 August 1979 TIME 1350 MDTMISSILE TYPE 19306B GPS MISSILE Nos. 1043, 1045 ROUND Nos. V-64, V-65MISSILE LAUNCHED FROM Snake Site DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	351	0.6
60	346	1.2
90	168	3.0
120	166	6.3
150	167	8.3
180	168	11.5
210	176	10.8
240	185	10.5
270	179	9.6
300	169	8.1
330	186	8.3
360	202	8.4

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	197	7.3
420	189	6.4
450	184	6.5
480	177	6.8
510	191	6.0
540	217	6.3
570	192	5.3
600	180	5.4
630	182	5.7
660	184	6.0
690	166	5.6
720	147	5.7
750	149	6.6

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	149	7.4
810	147	6.6
840	137	5.1
870	141	3.5
900	146	2.7
930		
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

PILOT BALLOON MEASURED WIND DATA\*  
(3.0 meter increments)

TABLE 3

RELEASED FROM Snake Site DATE 17 August 1979 TIME 1400 MDT

MISSILE TYPE 19306 B GPS MISSILE NOS. 1043, 1045 ROUND NOS. V-64, V-65

MISSILE LAUNCHED FROM Snake Site DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	202	0.5
60	202	0.5
90	201	1.4
120	203	2.3
150	195	3.4
180	193	4.6
210	174	4.4
240	156	4.7
270	168	8.2
300	173	11.8
330	180	12.4
360	188	13.2

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	175	10.6
420	154	9.0
450	160	8.0
480	166	7.0
510	192	7.0
540	214	8.1
570	205	8.8
600	196	9.7
630	196	8.2
660	196	6.8
690	181	9.2
720	172	12.0
750	171	10.6

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	171	9.1
810	177	9.9
840	189	10.9
870	193	8.2
900	212	6.0
930		
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

## PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM SNAKE SITE DATE 17 August 1979 TIME 1520 MDTMISSILE TYPE 19306 B GSR5 MISSILE NOS. 1043, 1045 ROUND NOS. V-64, V-65MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	090	0.1
60	090	0.1
90	090	0.1
120	090	0.1
150	131	1.8
180	132	3.5
210	156	3.5
240	177	4.0
270	185	8.1
300	187	12.3
330	196	12.9
360	203	13.6

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
390	205	13.5
420	205	13.3
450	195	14.5
480	187	16.1
510	184	14.6
540	179	13.2
570	176	14.4
600	173	15.6
630	169	17.1
660	165	18.7
690	173	17.6
720	182	16.9
750	184	17.2

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	186	17.4
810	179	16.5
840	171	15.9
870	178	15.6
900	185	15.5
930		
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

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1 APRIL 79



## PILOT BALLOON MEASURED WIND DATA\*

TABLE 5RELEASED FROM SNAKE SITE DATE 17 August 1979 TIME 1531 MDTMISSILE TYPE 19306 B GSRS MISSILE NOS. 1043, 1045 ROUND NOS. V-64, V-65MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	090	0.1
60	090	0.1
90	180	3.8
120	180	7.5
150	195	10.8
180	202	14.4
210	202	15.6
240	201	16.7
270	209	9.3
300	196	11.0
330	164	12.6
360	166	15.1

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
390	166	14.1
420	166	13.2
450	163	12.7
480	164	12.2
510	156	12.0
540	151	12.1
570	145	10.7
600	135	9.6
630	139	9.9
660	143	10.2
690	149	9.8
720	156	9.7
750	163	9.8

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	171	10.1
810	160	10.0
840	149	10.2
870	153	9.8
900	156	9.5
930		
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
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PILOT BALLOON MEASURED WIND DATA  
(30 meter increments)

TABLE 6

RELEASED FROM DENVER SITE DATE 17 Aug 79 TIME 1350 MST

MISSILE TYPE 19306 B GPS MISSILE NO. 1043, 1045 ROUND NO. V-64, V-65

MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531, MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	225	1.1
60	225	1.1
90	194	0.4
120	90	0.5
150	188	3.1
180	192	6.7
210	186	4.6
240	170	2.8
270	198	4.3
300	209	6.4
330	211	7.9
360	213	9.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	205	8.1
420	194	6.8
450	196	9.0
480	198	11.3
510	197	10.3
540	195	9.5
570	195	8.3
600	196	7.1
630	188	7.2
660	181	7.4
690	174	4.8
720	149	2.6
750	184	1.4

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	215	3.2
810	204	3.2
840	195	3.4
870	198	2.3
900	207	1.3
930	202	0.5
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

## PILOT BALLOON MEASURED WIND DATA

TABLE 7

RELEASED FROM DENVER SITE DATE 17 August 1979 TIME 1400 MDTMISSILE TYPE 19306B GSRS MISSILE NOs. 1043, 1045 ROUND NOs. V-64, V-65MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	M	M
60	M	M
90	M	M
120	M	M
150	M	M
180	M	M
210	M	M
240	M	M
270	M	M
300	M	M
330	M	M
360	M	M

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
390	M	M
420	M	M
450	197	7.3
480	200	7.4
510	204	7.5
540	205	7.5
570	212	7.1
600	218	6.5
630	223	5.9
660	213	6.3
690	225	7.1
720	239	5.8
750	242	5.2

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	224	2.9
810	225	2.8
840	180	1.0
870	270	2.1
900	315	4.2
930	315	5.7
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
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1980		
2010		
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## PILOT BALLOON MEASURED WIND DATA

TABLE 8RELEASED FROM DENVER SITE DATE 17 August 1979 TIME 1520 MDTMISSILE TYPE 19306B GSRS MISSILE NOS. 1043, 1045 ROUND NOS. V-64, V-65MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	187	8.1
30	187	8.3
60	187	8.7
90	187	8.9
120	187	8.9
150	187	8.9
180	187	8.9
210	189	8.6
240	193	8.7
270	206	9.2
300	204	9.9
330	201	11.8
360	201	11.8

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
390	201	11.9
420	201	12.6
450	200	12.1
480	199	12.5
510	198	12.6
540	196	11.6
570	201	8.5
600	196	7.4
630	194	8.3
660	195	9.0
690	196	9.6
720	197	9.7
750	186	9.6

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	185	7.1
810	189	6.1
840	195	5.7
870	192	5.6
900	191	5.5
930	187	4.9
960		
990		
1020		
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
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1860		
1890		
1920		
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2070		



## PILOT BALLOON MEASURED WIND DATA

TABLE 9

RELEASED FROM DENVER SITE DATE 17 August 1979 TIME 1531 MDTMISSILE TYPE 19306 B GSRs MISSILE NOs. 1043, 1045 ROUND NOs. V-64, V-65MISSILE LAUNCHED FROM SNAKE SITE DATE 17 August 1979 TIME 1400, 1531 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	M	M
30	210	8.1
60	207	8.6
90	205	9.0
120	201	9.3
150	199	9.3
180	195	8.9
210	190	8.3
240	188	8.0
270	188	7.5
300	193	7.2
330	196	7.2
360	196	7.2

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
390	192	7.5
420	188	8.3
450	188	9.1
480	189	10.1
510	196	11.2
540	197	12.0
570	202	12.3
600	209	12.1
630	209	11.2
660	207	10.6
690	203	10.6
720	201	11.5
750	198	13.5

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GEODETIC COORDINATES  
33.3688 LAT DEG  
106.40406 LON DEG

SIGNIFICANT LEVEL DATA  
2290230003  
SW 70

TABLE 10

STATION ALTITUDE 4395.50 FEET MSL  
17 AUG. 79  
ASCENSION NO. 3

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE		REL. HUM. PERCENT
872.0	4395.5	22.8	15.6	64.0
862.0	4724.7	20.1	13.3	65.0
850.0	5121.5	18.3	12.1	67.0
790.5	7147.0	12.0	11.5	97.0
781.1	7476.7	11.4	6.7	73.0
774.6	7707.0	12.8	5.7	94.0
726.4	9397.3	10.1	1.5	55.0
700.0	10478.7	6.8	.5	63.0
657.6	12156.8	3.0	.9	66.0
649.0	12507.9	3.0	-.6	76.0
623.4	13576.7	.7	-2.7	78.0
614.8	13944.4	1.4	-5.1	62.0
593.0	14898.5	.0	-6.8	60.0
581.4	15417.8	-1.2	-16.1	31.0
557.0	16536.4	-3.7	-20.6	25.0
525.2	18054.5	-6.6	-26.5	19.0
500.0	19310.1	-9.7	-28.4	24.0
479.2	20383.5	-12.3	-31.7	18.0
464.4	21172.2	-12.2	-37.5	10.0
442.6	22378.4	-13.4	-34.4	15.0
400.0	24861.2	-19.7	-37.9	18.0
387.4	25659.6	-22.0	-36.6	20.0
380.8	26075.4	-22.3	-43.6	12.0
367.6	26925.0	-24.3	-43.4	15.0

GEODETIC COORDINATES  
33.3688 LAT DEG  
106.4046 LON DEG

UPPER AIR DATA  
2290230003  
SW 70  
TABLE 11

STATION ALTITUDE 4395.50 FEET MSL  
17 AUG. 79  
ASCENSION 10. 3 1115 HRS MST

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION, DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
4395.5	872.0	22.8	64.0	1016.5	672.8	00	0.0	1.000304
4500.0	866.8	21.9	64.3	1011.1	671.7	119.1	.1	1.000301
5000.0	853.7	18.9	66.4	1011.9	667.9	119.1	.8	1.000290
5500.0	839.6	17.1	72.6	999.9	665.9	119.1	1.5	1.000287
6000.0	823.7	15.6	80.0	987.4	664.1	119.1	2.2	1.000284
6500.0	809.0	14.0	87.4	973.0	662.3	119.1	2.9	1.000282
7000.0	794.7	12.5	94.8	963.0	660.5	113.7	1.5	1.000278
7500.0	780.4	11.5	71.1	950.5	658.9	338.8	.5	1.000257
8000.0	766.4	12.3	54.2	931.8	659.5	319.5	1.9	1.000244
8500.0	752.6	11.5	54.5	917.5	658.5	318.5	3.3	1.000239
9000.0	739.0	10.7	54.8	903.8	657.8	344.9	3.9	1.000235
9500.0	725.7	9.8	55.8	890.3	656.5	1.3	4.7	1.000230
10000.0	712.4	8.3	59.5	878.9	654.7	12.5	4.9	1.000227
10500.0	699.4	6.8	63.3	867.6	652.9	24.2	4.6	1.000223
11000.0	686.5	5.6	70.1	854.9	651.8	40.2	4.1	1.000222
11500.0	673.9	4.5	77.0	842.5	650.3	38.2	3.2	1.000220
12000.0	661.5	3.4	83.9	830.2	649.0	12.9	2.2	1.000217
12500.0	649.2	3.0	75.2	818.2	648.5	292.5	2.7	1.000211
13000.0	637.1	1.9	76.9	804.2	647.2	287.4	5.7	1.000206
13500.0	625.2	.9	77.9	792.4	645.9	281.5	9.2	1.000202
14000.0	613.5	1.3	61.9	776.7	645.2	280.1	12.1	1.000194
14500.0	602.0	.6	60.8	764.3	645.3	283.0	13.5	1.000190
15000.0	590.7	-.2	54.3	752.4	644.3	287.2	14.0	1.000184
15500.0	579.6	-1.4	30.6	742.1	642.8	274.0	13.5	1.000174
16000.0	568.6	-2.5	27.9	731.1	641.2	273.0	13.6	1.000170
16500.0	557.8	-3.6	25.2	720.3	639.8	273.0	13.9	1.000167
17000.0	547.1	-4.6	23.2	709.2	638.7	287.0	14.1	1.000163
17500.0	536.6	-5.5	21.2	698.1	637.5	281.4	14.4	1.000160
18000.0	526.3	-6.5	19.2	687.2	636.3	281.9	14.1	1.000157
18500.0	516.1	-7.7	20.8	677.0	634.9	259.7	13.5	1.000155
19000.0	506.1	-8.9	22.8	666.9	633.4	252.5	12.6	1.000152
19500.0	496.3	-10.2	22.9	657.0	631.9	253.3	13.2	1.000150
20000.0	486.5	-11.4	20.1	647.2	630.4	223.8	15.8	1.000147
20500.0	477.0	-12.3	32.3	636.8	629.3	213.8	20.8	1.000144
21000.0	467.6	-12.5	11.7	624.1	629.4	211.8	26.7	1.000141
21500.0	458.4	-12.5	36.5	612.8	629.0	209.8	29.5	1.000138
22000.0	449.3	-13.0	13.4	601.5	628.4	208.5	31.3	1.000136
22500.0	440.4	-13.7	13.1	591.2	627.8	203.2	29.8	1.000133
23000.0	431.6	-15.0	15.7	582.2	626.1	203.7	28.4	1.000131
23500.0	423.0	-16.2	16.3	573.4	624.5	200.8	27.3	1.000129

STATION ALTITUDE 4395.50 FEET MSL  
 17 AUG. 79 1115 HRS MST  
 ASCENSION NO. 3

UPPER AIR DATA  
 2290230003  
 SW 70

GEODETIC COORDINATES  
 33.36888 LAT DEG  
 106.40406 LONG DEG

TABLE 11 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS/CUBIC METER	SPEED OF SOUND KNOTS	# INCL DATA DIRECTIONS DEGREES (H)	SPEED KNOTS	INDEX OF REFRACTION
4400.0	414.5	-17.5	16.9	564.7	623.0	198.7	27.1	1.000127
4500.0	406.2	-18.7	17.5	555.1	621.5	197.1	27.3	1.000125
4600.0	398.1	-20.1	18.3	547.8	619.8	197.9	29.2	1.000123
4700.0	390.0	-21.5	19.6	539.8	618.0			1.000122
4800.0	382.0	-22.2	13.5	530.3	617.1			1.000119
4900.0	374.1	-23.3	13.5	521.0	615.8			1.000117

STATION ALTITUDE 4395.50 FEET MSL  
17 AUG. 79  
ASCENSION NO. 3

WIND DIRECTION 240  
WIND SPEED 10  
TABLE 12

GEODETIC COORDINATES  
33.3688 LAT DEG  
106.40406 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	SEA SURF DEGREES	PERCENT	DIRECTION DEGREES (TN)	SPEED KNOTS	
850.0	5118.	18.3	12.1	87.	119.1	1.0	
800.0	6012.	13.0	11.0	92.	117.0	2.2	
750.0	6589.	11.4	2.0	55.	323.9	3.4	
700.0	10469.	9.8	.3	63.	23.5	4.7	
650.0	12454.	5.9	-0	77.	296.8	4.5	
600.0	14573.	.5	-5.2	81.	203.4	13.8	
550.0	16244.	-4.3	-21.9	24.	200.8	14.0	
500.0	19284.	-9.7	-26.4	24.	245.3	12.5	
450.0	21931.	-13.0	-35.3	13.	200.5	31.5	
400.0	24641.	-19.7	-37.9	18.	197.7	28.7	

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

SIGNIFICANT LEVEL DATA  
289020004  
WHITE SANDS

TABLE 13

STATION ALTITUDE 3939.00 FEET MSL  
17 AUG. 79  
ASCENSION NO. 359

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
655.4	3939.0	12.4	58.0
650.0	5155.5	11.7	59.0
763.8	7433.0	11.0	68.0
700.0	10359.6	3.3	73.0
679.0	11032.0	1.9	75.0
640.0	12224.5	-5.9	66.0
619.2	13939.0	-8.0	69.0
599.0	14704.0	-14.0	53.0
575.2	15859.4	-11.0	48.0
564.8	16244.7	-19.0	49.0
542.0	17330.4	-15.0	17.0
500.0	17335.7	-31.4	45.0
492.0	17764.4	-35.4	11.0
469.2	20250.2	-36.4	10.0
460.0	24933.2	-40.0	12.0
379.0	26137.7	-45.0	10.0
353.2	27534.5	-47.0	10.0
307.2	31219.5	-51.2	75.0
300.0	34759.6	-51.0	41.0
285.2	36031.1	-51.0	37.0
280.0	37034.5	-51.0	33.0
253.1	3837.7	-45.0	33.0
200.0	40640.5	-57.0	10.0
170.2	43947.5	-64.7	10.0
150.0	46544.0	-60.9	10.0
125.4	50634.0	-64.2	10.0
111.0	52377.8	-68.4	10.0
109.2	53833.0	-66.0	10.0
100.0	54832.5	-66.0	10.0
91.0	56033.0	-65.4	10.0
70.0	62336.0	-61.7	10.0
50.0	68336.0	-58.8	10.0
40.0	74336.0	-58.0	10.0
30.0	79336.0	-58.1	10.0
20.0	84336.0	-58.2	10.0
10.0	89336.0	-58.3	10.0

STATION ALTITUDE 3499.00 FEET MSL  
 17 AUG. 79 1400 HRS MST  
 ASCENSION NO. 359

UPPER AIR DATA  
 249000Z099  
 DATE 0909

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

TABLE 14

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECT WIND DIRECTIONS (10)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3929.0	865.4	24.5	50.0	1029.4	674.3	150.0	4.1	1.000295
4000.0	865.1	24.5	50.1	1029.4	674.3	150.1	4.1	1.000295
4050.0	869.7	22.5	53.9	1018.4	674.1	150.3	4.5	1.000291
4000.0	864.6	20.6	57.6	1007.4	669.8	161.3	5.0	1.000269
5000.0	839.0	19.1	63.4	984.7	666.1	165.4	5.5	1.000264
6000.0	824.8	17.7	69.6	961.5	660.0	168.2	5.9	1.000262
810.3	810.3	16.3	76.1	960.6	665.0	163.5	4.6	1.000260
790.0	790.0	15.0	82.5	950.0	660.0	159.4	3.4	1.000277
750.0	751.9	13.7	87.7	941.4	662.0	171.0	2.3	1.000274
6000.0	767.6	12.7	95.3	924.9	660.7	212.0	1.7	1.000265
5000.0	753.9	11.7	82.6	916.0	655.4	207.7	2.8	1.000258
9000.0	740.3	10.6	69.4	900.5	660.2	273.0	4.7	1.000250
713.9	713.9	8.8	75.6	890.0	660.9	272.1	6.1	1.000243
10500.0	701.0	7.9	73.2	877.9	655.7	270.0	7.4	1.000237
11000.0	699.2	6.0	74.2	860.0	654.0	269.3	8.0	1.000230
11500.0	673.6	4.7	73.0	850.9	651.0	261.3	8.5	1.000225
12000.0	663.1	3.6	67.0	829.3	650.5	242.1	8.0	1.000213
12500.0	630.8	2.9	61.1	810.3	643.3	201.3	9.3	1.000200
13000.0	626.9	2.0	57.0	804.2	640.1	222.2	10.0	1.000200
13500.0	613.2	1.1	63.3	791.0	647.1	223.9	11.1	1.000199
14000.0	603.0	0.3	66.9	773.2	643.1	229.3	12.2	1.000190
14500.0	592.3	-5	42.8	767.7	640.7	232.1	13.9	1.000185
15000.0	561.1	-1.4	36.8	750.7	640.7	239.4	15.6	1.000179
15500.0	570.1	-2.3	43.3	740.3	644.0	239.2	16.2	1.000178
16000.0	559.3	-3.0	40.0	732.3	644.0	237.0	16.1	1.000174
16500.0	540.0	-3.5	23.1	720.7	640.0	237.0	14.4	1.000160
17000.0	530.1	-4.7	17.3	709.3	639.3	239.0	12.9	1.000152
17500.0	527.7	-6.0	16.6	697.9	639.5	229.3	11.8	1.000159
18000.0	517.5	-7.2	15.2	687.8	639.3	229.4	12.1	1.000157
18500.0	507.6	-8.5	15.6	677.9	639.4	224.4	13.0	1.000154
19000.0	497.7	-9.9	15.3	667.9	639.9	225.0	13.0	1.000151
19500.0	498.0	-10.7	13.9	650.4	632.2	229.0	13.5	1.000149
20000.0	475.4	-11.0	10.5	647.5	631.2	227.1	21.2	1.000140
20500.0	466.3	-12.1	10.1	631.7	630.0	227.0	23.4	1.000143
21000.0	459.5	-13.2	10.3	620.6	628.0	220.9	24.6	1.000141
21500.0	450.3	-14.0	10.5	610.7	628.1	220.7	24.4	1.000139
22000.0	441.3	-15.1	11.0	590.5	620.0	220.3	24.5	1.000130
22500.0	432.5	-16.5	11.2	567.1	620.0	220.3	24.9	1.000134
23000.0						225.2	26.0	1.000132



STATION ALTITUDE 3989.00 FEET MSL  
17 AUG 79 1420 HRS MST  
ASCENSION NO. 309

UPPER AIR DATA  
240000Z009  
HATE 1200

GEOGRAPHIC COORDINATES  
32.40043 LAT DEG  
105.37033 LONG DEG

TABLE 14 (Cont)

GEOGRAPHIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY G/CM <sup>3</sup>	SPEED OF WIND KNOTS	DIRECTION DEGREES (T)	INDEX OF REFRACTION
23500.0	423.9	-17.9	11.4	577.9	622.0	219.2	1.000130
24000.0	419.4	-16.7	11.6	560.8	624.4	210.2	1.000128
24500.0	407.2	-19.9	11.5	557.9	620.1	217.0	1.000120
25000.0	397.0	-20.9	11.3	551.9	610.8	217.0	1.000124
25500.0	390.2	-21.3	11.1	540.7	613.2	210.0	1.000121
26000.0	382.9	-21.8	10.3	530.7	617.7	214.0	1.000119
26500.0	375.1	-22.7	10.0	521.0	610.9	210.9	1.000117
27000.0	367.3	-23.9	10.0	513.2	618.2	200.9	1.000115
27500.0	359.5	-24.9	10.0	501.3	610.8	207.4	1.000113
28000.0	352.2	-26.0	16.1	490.3	612.5	207.9	1.000111
28500.0	344.8	-27.2	27.0	480.0	611.1	202.0	1.000110
29000.0	337.6	-28.3	35.8	469.2	619.7	195.0	1.000106
29500.0	329.5	-29.4	44.0	472.0	609.0	194.7	1.000107
30000.0	323.5	-30.5	53.5	454.0	600.9	194.0	1.000105
30500.0	319.7	-31.7	62.3	430.9	600.0	197.9	1.000103
31000.0	310.1	-32.8	71.1	449.0	614.1	180.2	1.000102
31500.0	303.5	-34.1	69.0	424.0	604.5	162.0	1.000100
32000.0	297.0	-35.0	61.5	434.9	600.9	160.9	1.000098
32500.0	290.5	-36.0	61.5	427.0	600.0	179.2	1.000096
33000.0	284.2	-37.7	55.1	420.0	617.0	179.1	1.000095
33500.0	277.9	-39.0	52.7	410.0	600.2	177.1	1.000093
34000.0	271.9	-40.4	51.1	400.0	604.4	179.6	1.000091
34500.0	265.9	-41.7	49.5	390.1	611.7	170.0	1.000090
35000.0	260.0	-43.0	47.4**	380.9	600.0	170.9	1.000088
35500.0	254.2	-44.5	40.9**	367.2	600.0	170.2	1.000086
36000.0	249.5	-46.0		360.0	600.0	170.2	1.000085
36500.0	244.7	-47.1		351.0	600.0	170.2	1.000083
37000.0	240.1	-48.0		337.4	600.0	172.7	1.000082
37500.0	231.0	-49.6		324.0	600.0	174.4	1.000080
38000.0	220.3	-50.9		300.0	600.0	170.2	1.000079
38500.0	221.1	-52.1		300.0	600.0	174.1	1.000078
39000.0	215.9	-53.4		341.0	617.0	170.0	1.000076
39500.0	211.0	-54.6		330.0	600.0	179.0	1.000075
40000.0	200.1	-55.9		350.0	600.0	170.0	1.000074
40500.0	201.2	-57.1		350.0	600.0	170.0	1.000072
41000.0	195.6	-58.2		347.1	600.0	171.0	1.000071
41500.0	190.0	-59.3		330.0	600.0	170.0	1.000069
42000.0	187.3	-60.6		311.2	600.0	170.0	1.000067
42500.0	180.0	-61.9		290.0	600.0	170.0	1.000065
43000.0	175.7	-63.0		280.0	617.0	169.9	1.000064

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

UPPER AIR DATA  
2420020009  
WIDE SWINS

STATION ALTITUDE 3489.00 FEET MSL  
17 AUG. 79  
ASCENSION NO. 359  
1420 HRS MST

TABLE 14 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION DEGREES (T.)	WIND SPEED KNOTS	INDEX OF REFRACTION
4350.0	174.5	-55.1		275.7	575.3	240.5	52.7	1.000062
4300.0	170.4	-54.8		271.6	575.7	244.0	55.3	1.000061
4250.0	166.3	-55.0		265.5	574.4	245.0	58.0	1.000059
4200.0	162.4	-55.7		261.4	573.1	249.1	59.5	1.000058
4150.0	158.5	-57.7		255.3	571.9	249.0	60.7	1.000057
4100.0	154.6	-59.0		251.4	570.0	249.0	56.3	1.000056
4050.0	151.1	-59.0		245.5	569.3	240.2	48.2	1.000055
4000.0	147.5	-60.3		241.5	568.4	250.0	40.3	1.000054
3950.0	143.9	-61.5		237.1	567.7	254.0	32.9	1.000053
3900.0	140.4	-61.4		231.0	567.0	261.1	26.9	1.000052
3850.0	137.0	-61.9		225.9	566.2	267.4	25.6	1.000049
3800.0	133.7	-62.4		221.0	565.5	267.4	21.9	1.000048
3750.0	130.5	-63.0		216.2	564.8	261.4	18.5	1.000047
3700.0	127.3	-63.5		211.5	564.1	255.1	18.4	1.000046
3650.0	124.2	-64.1		207.0	563.5	253.7	21.3	1.000045
3600.0	121.2	-65.0		202.6	562.1	243.7	25.1	1.000044
3550.0	118.2	-66.0		198.0	560.7	240.0	28.7	1.000043
3500.0	115.3	-67.1		194.9	559.2	210.7	23.5	1.000043
3450.0	112.4	-68.2		191.0	557.3	216.0	27.4	1.000041
3400.0	109.5	-67.0		185.5	555.5	210.8	24.4	1.000039
3350.0	106.9	-66.0		180.5	553.9	221.7	17.4	1.000038
3300.0	104.3	-66.3		175.6	553.3	221.7	16.4	1.000037
3250.0	101.7	-66.3		171.2	553.3	213.0	16.7	1.000036
3200.0	99.2	-66.3		167.0	553.4	213.0	15.2	1.000035
3150.0	96.7	-66.2		162.8	553.5	213.0	10.6	1.000034
3100.0	94.3	-65.0		158.7	553.7	209.4	6.6	1.000033
3050.0	92.0	-65.9		154.7	553.0	209.4	10.5	1.000032
3000.0	89.7	-65.5		150.6	551.0	199.9	12.2	1.000031
2950.0	87.5	-65.7		147.0	551.1	199.9	13.1	1.000030
2900.0	85.4	-65.5		143.5	551.4	199.9	13.2	1.000029
2850.0	83.3	-65.5		139.7	551.4	199.9	11.2	1.000028
2800.0	81.2	-65.2		136.1	551.7	199.9	10.9	1.000027
2750.0	79.3	-64.6		132.4	552.5	199.9	10.6	1.000026
2700.0	77.5	-64.1		128.6	553.5	199.9	11.5	1.000025
2650.0	75.4	-63.9		125.3	554.1	199.9	10.7	1.000024
2600.0	73.6	-62.9		121.9	554.7	199.9	11.5	1.000023
2550.0	71.8	-62.7		118.5	555.0	199.9	11.5	1.000022
2500.0	70.1	-61.7		114.5	555.0	199.9	11.5	1.000021
2450.0	68.4	-61.5		110.5	555.0	199.9	11.5	1.000020
2400.0	66.7	-61.2		106.7	557.2	199.9	11.5	1.000019

STATION ALTITUDE 3409.00 FEET MSL  
17 AUG. 79 1420 HRS MST  
ASCESSION NO. 399

UPPER AIR DATA  
249002059  
DATE 08-15-79

GEOMETRIC COORDINATES  
32.40043 LAT DEG  
106.37333 LONG DEG

TABLE 14 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE MIL DEGREE CELSIUS	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND M/SEC	WIND DIRECTION DEGREES (T)	WIND SPEED KNOTS	INDEX OF REFRACTION
3530.0	55.1	-51.0		100.9	567.5	137.7	12.6	1.000024
3400.0	53.9	-50.7		104.3	567.0	139.7	14.2	1.000023
3300.0	52.1	-50.4		101.0	555.2	132.6	14.1	1.000023
3200.0	50.9	-50.2		99.4	545.0	121.9	13.9	1.000022
3100.0	50.1	-50.2		96.0	535.0	110.0	14.2	1.000022
3000.0	50.7	-50.7		94.2	533.2	99.7	15.4	1.000021
2900.0	50.3	-50.4		91.9	531.0	90.0	17.7	1.000020
2800.0	50.0	-50.2		89.3	529.9	77.7	19.1	1.000020
2700.0	50.7	-50.9		87.3	529.2	71.9	19.3	1.000019
2600.0	52.4	-50.7		85.1	520.0	69.0	20.5	1.000019
2500.0	51.1	-50.4		82.9	519.9	74.4	19.7	1.000018
2400.0	49.9	-50.2		81.9	511.2	73.0	19.0	1.000018
2300.0	48.7	-50.4		79.0	510.9	75.0	18.3	1.000018
2200.0	47.6	-50.3		77.1	512.0	61.7	17.7	1.000017
2100.0	49.4	-50.5		75.0	512.0	60.0	17.3	1.000017
2000.0	48.2	-50.3		71.0	513.1	68.4	17.1	1.000016
1900.0	43.2	-50.2		69.1	510.2	90.1	16.6	1.000015
1800.0	42.2	-50.4		67.4	510.2	67.0	16.0	1.000015
1700.0	41.2	-50.6		65.4	517.2	64.6	19.3	1.000015
1600.0	40.3	-50.0		63.7	513.0	59.2	20.5	1.000014
1500.0	39.3	-52.8		61.2	513.0	63.4	21.3	1.000014
1400.0	38.4	-52.6		59.7	513.0	60.0	22.1	1.000014
1300.0	37.0	-52.1		59.3	513.9	62.9	22.4	1.000013
1200.0	36.2	-51.9		57.0	519.2	60.9	22.2	1.000013
1100.0	35.0	-51.7		55.4	519.0	75.9	22.1	1.000013
1000.0	34.2	-51.5		53.0	513.0	73.0	22.6	1.000012
900.0	33.4	-51.2		52.0	513.1	61.0	24.0	1.000012
800.0	32.7	-51.0		52.0	513.0	63.0	25.3	1.000012
700.0	31.9	-50.9		51.4	500.0	59.7	26.2	1.000011
600.0	31.2	-50.6		51.0	501.4	67.0	27.1	1.000011
500.0	30.4	-50.3		47.0	504.0	60.0	27.9	1.000011
400.0	29.6	-50.1		45.0	501.0	90.1	27.7	1.000010
300.0	29.1	-49.9		43.4	500.1	90.0	27.6	1.000010
200.0	28.4	-49.7		41.9	500.1	90.1	27.9	1.000010
100.0	27.6	-49.4		40.2	500.7	90.2	26.2	1.000010
000.0	27.1	-49.2		38.2	500.0			1.000009
000.0	26.3	-49.0		36.2	500.3			1.000009
000.0	25.9	-48.3		34.2	500.0			1.000009

STATION ALTITUDE 3489.00 FEET MSL  
 17 AUG. 79 1420 HRS MST  
 ASCENSION NO. 339

UPPER AIR DATA  
 2290020359  
 WHITE SANDS

GEODETTIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

TABLE 14 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION DEGREES (T)	SPEED KNOTS	INDEX OF REFRACTION
3350.0	25.3	-48.5		39.3	503.9			1.000009
3400.0	24.7	-46.3		38.3	504.2			1.000009

STATION ALTITUDE 3989.00 FEET MSL  
17 AUG. 79 1420 HRS MST  
ASCENSION NO. 359

MANDATORY LEVELS  
24900.0009  
WHITE CLOUDS

GEODETIC COORDINATES  
52.40043 LAT DEG  
136.37033 LONG DEG

TABLE 15

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	LEAPPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES (TN)	SPEED KNOTS	
650.0	5152.	20.0	11.7	59.	102.0	5.1	
800.0	6057.	15.4	12.1	61.	100.2	3.7	
750.0	6843.	11.5	8.0	64.	204.1	5.3	
700.0	10529.	7.8	3.0	70.	204.9	8.1	
650.0	12532.	3.7	-3.1	84.	200.9	9.3	
600.0	14042.	.1	-13.0	99.	203.0	14.4	
550.0	16914.	-3.4	-24.2	10.	204.0	13.1	
500.0	19358.	-9.5	-31.2	13.	220.4	17.4	
450.0	22003.	-14.4	-38.0	11.	220.0	24.5	
400.0	24098.	-20.8	-42.0	12.	217.1	33.7	
350.0	25107.	-25.4	-42.2	11.	204.0	40.8	
300.0	31703.	-34.8	-38.2	11.	101.7	53.7	
250.0	35788.	-43.5			174.0	80.6	
200.0	40041.	-57.5			194.0	41.5	
175.0	43324.	-55.1			209.9	52.1	
150.0	46327.	-59.9			240.0	40.1	
125.0	50228.	-63.9			239.4	10.0	
100.0	54361.	-68.3			215.0	10.4	
80.0	58120.	-64.9			113.0	13.6	
70.0	61011.	-64.7			112.8	10.5	
60.0	64346.	-50.1			110.7	14.0	
50.0	68093.	-53.2			73.2	19.1	
40.0	73349.	-53.0			83.2	20.6	
30.0	79474.	-50.2			90.0	27.8	
25.0	83390.	-48.4					

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.